



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,198	11/17/2003	Seung Hee Nam	8733.936.00-US	9565
30827	7590	06/02/2005	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP			QI, ZHI QIANG	
1900 K STREET, NW			ART UNIT	
WASHINGTON, DC 20006			PAPER NUMBER	
			2871	

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/713,198	Applicant(s) NAM ET AL.	
	Examiner Mike Qi	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, recites the limitation ". . .the data pad protection electrode. . ." in which the data pad protection electrode does not have any definition in the claim. There is insufficient antecedent basis for this limitation in the claim.

Claims 2-6 are dependent on the claim 1, so that all the dependent claims have the deficiency set forth above.

Claim 5, recites the limitation ". . . removing the insulation film and the gate insulation part formed in the gate pad part . . ." according to claim 1. However, the claim 1 does not describe the insulation film and the gate insulation part. There is insufficient antecedent basis for this limitation in the claim. For examination purpose, it is interpreted as the insulation film is a protection film such as a passivation film and the gate insulation part is a gate insulation film.

Claim 6, recites the limitation ". . . removing the insulation film . . . and the gate insulation film . . ." according to claim 1. However, the claim 1 does not describe the insulation film and the gate insulation film. There is insufficient antecedent basis for this

limitation in the claim. For examination purpose, it is interpreted as the insulation film is a protection film such as a passivation film.

Claim Objections

3. Claim 4 is objected to because of the following informalities: recitation "...by use of 1 masking process; ..." should be "... by use of a first masking process ... - - according to the specification. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by US 6,380,559 B1 (Park et al).

Claim 1, Park discloses (col.6, line 51 – col.13, line 52; Figs.1-5) that a fabrication method of a liquid crystal display panel comprising:

- forming a thin film transistor (3) at crossings of gate lines (22) and data lines (62) formed on a substrate (10);
- a pixel electrode (82);
- a substrate including a plurality of thin film transistor array substrates, such as four panel regions (110,120,130,140) corresponding to four display areas

- (111,121,131,141) (four thin film transistor array substrates) having a gate line assembly (gate pad part) including a gate pad (24) connected to the gate line (22) and a data line assembly (data pad part) including a data pad (64) connected to the data line (62);
- the data line assembly (data pad part) including lower layer (621, 641, metallic material) and upper layer (622, 642, low resistance metallic material), that is the data pad and data pad protection electrode functions to protect the data pad;
 - the function of the cutting-off plate is the same as the function of a mask, because the cutting-off plate having open portion and opaque portion that allows the light passing through the open portion; and using mask to expose the gate pad of the pad part and the data pad electrode by etching process using the mask; and arranging the mask on a region to form the pad part, so that the opaque portion on the region of the substrate other than the region of the pad part.

Therefore, the reference Park can read the limitations as claimed.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 6,380,559 B1 (Park et al) as applied to claim 1 above.

Claim 2, Park discloses (col.1, lines 13-24) that generally, liquid crystal display is formed with two glass substrates (TFT array substrate and color filter substrate), and the forming method performing photolithography by using mask. Such that the gate pad and the data pad electrode are exposed, and that is a general manufacturing method, and that would have been at least obvious.

8. Claims 3 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,380,559 B1 (Park et al) as applied to claim 1 above, and further in view of US 6,255,130 B1 (Kim).

Claim 3, lacking limitation is such that the cutting-off plate is made of a metal.

However, Kim discloses (col.9, lines 49-63; Fig.7B) that a photomask (400) having a plurality of slits (410) (open portion), and a metal Cr layer is coated on the mask (400) to reduce the amount of exposing light. Therefore, the skilled in the art would use a metal mask to shield the light exposing in the opaque portion efficiently.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to use a metal cutting-off plate as claimed in claim 3 for achieving efficiently shield the light exposing in the opaque portion of the cutting-off plate.

Claim 5-6, Park discloses (col.12, lines 50-67; Fig.14) that the passivation layer (70) and the gate insulating layer (30) using dry etching to expose the gate pad. As general available knowledge, the dry etching would be easier to control.

Therefore, it would have been obvious at the time the invention was made to use dry etching process removing the insulation film (such as the passivation film) and the gate insulation film in order to expose the gate pad or to expose the data pad protection electrode as claimed in claims 5-6 for achieving easier control the exposing process. .

Allowable Subject Matter

9. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph and the objections, set forth in this Office action.

10. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither discloses nor teaches that a fabrication method of a liquid crystal display panel comprising various steps, more specifically, as the following:

the forming steps using only three masking process: forming a gate insulation film on a substrate, then forming a gate pattern having a gate electrode, gate line connected to gate electrode and gate pad connected to the gate line on the substrate by use of a first masking process; forming a source electrode and a drain electrode, a data line connected to the source electrode, a data pad connected the data line, a storage electrode overlapped with the gate line, a semiconductor pattern in the lower part on the gate insulation film by use of a second masking process; and forming pixel electrode

Art Unit: 2871

connected to the drain electrode and storage electrode, a transparent electrode pattern having a data pad protection electrode covering the data pad and the protection film (such as passivation film) on the substrate where the transparent electrode is formed by use of a third masking process as shown in Fig.12 [claim 4].

The closest references such as US 6,380,559 B1 (Park et al) and US 6,255,130 B1 (Kim) discloses a fabricating method of a liquid crystal display device using photomask process in which the steps are different from this application. The prior art of record discloses using four masking process, such as forming the gate line assembly by using a first mask; forming the data line assembly by using a second mask; then deposited a passivation layer covers the semiconductor layer and the data line assembly using photoresist film coated onto the passivation layer and then exposed to light by using third mask so as to form the semiconductor pattern by etching the passivation layer and underlying semiconductor layer at pixel area; then forming pixel electrode by using a fourth mask. This application adapts three masking process which reduces the fabrication cost and improves the fabrication yield.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299.

The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi
Mike Qi
Patent Examiner
May 24, 2005